

IN THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

1. (Currently Amended) A method of Joint Photographic Experts Group (JPEG) adaptive quantization for image compression, the method comprising:
associating each of a plurality of quantization matrices to a corresponding end-of-block code for a plurality of end-of-block codes;
performing a discrete cosine transform of a digitized image file comprising a plurality of data blocks;
quantizing the discrete-cosine-transformed digitized image file using at least two of the plurality of quantization matrices; and
including in the quantized discrete-cosine-transformed digitized image file, for at least one of the data blocks, the ~~end-of-block~~ end-of-block code corresponding to the quantization matrix used to quantize the ~~discrete-cosine-transform~~ discrete-cosine-transformed digitized image file of the at least one data block.
2. (Original) The method of claim 1 wherein the plurality of end-of-block codes are included in a Huffman code table.
3. (Original) The method of claim 1 wherein the method operates according to JPEG baseline sequential mode.

4. (Original) The method of claim 2 further comprising including the Huffman code table in a header of the file.

5. (Currently Amended) The method of claim 4 further comprising reading, for the at least one data block, the end-of-block code corresponding to the quantization matrix used to quantize the ~~discrete cosine transform~~ discrete-cosine transformed digitized image file of the at least one data block;

obtaining, for the at least one data block, the quantization matrix used to quantize the ~~discrete cosine transform~~ discrete-cosine-transformed digitized image file of the at least one data block; and

dequantizing the at least one data block using the quantization matrix used to quantize the ~~discrete cosine transform~~ discrete-cosine-transformed digitized image file of the at least one data block.

6. (Currently Amended) The method of claim 4 further comprising: reading, for the at least one data block, the end-of-block code corresponding to the quantization matrix used to quantize the ~~discrete cosine transform~~ discrete-cosine-transformed digitized image file of the at least one data block; and

dequantizing the at least one data block using a standard JPEG quantization matrix irrespective of the quantization matrix used to quantize the ~~discrete cosine transform~~ discrete-cosine-transformed digitized image file of the at least one data block.

7. (Currently Amended) A JPEG-image-compression system comprising:

a discrete-cosine-transform element adapted to perform a discrete cosine transform of each data block of image data; and

a quantizer adapted to:

quantize each discrete-cosine transformed data block of the image data using a matrix selected from a plurality of quantization matrices; and

identify, for each discrete-cosine-transformed data block of the image data, which of the plurality of matrices was used to quantize the discrete-cosine-transformed data block of the image data; and

wherein the ~~identification comprises~~ quantizer generates an identification including, in the quantized discrete-cosine-transformed image data, an end-of-block code associated with the matrix used to quantize the discrete-cosine-transformed data block.

8. (Original) The system of claim 7 wherein the end-of-block code is included in a Huffman code table.

9. (Original) The system of claim 8 wherein a Huffman code table comprising a plurality of codes associated with a plurality of matrices is included in a header of the image data.

10. (Original) The system of claim 7 wherein the system operates according to JPEG baseline sequential mode.

11-13. (Canceled) .

14. (Currently Amended) An image compression-decompression system comprising:

an encoder for encoding a JPEG image file, the encoder including a quantizer adapted to quantize the JPEG image file using a plurality of quantization matrices, wherein the JPEG image file includes a plurality of data blocks and associated with each data block is an end-of-block code identifying which of the plurality of quantization matrices was used to quantize ~~a discrete cosine transform~~ discrete-cosine-transformed digitized image data of that data block; and

a decoder for decoding the JPEG image file, the decoder including a dequantizer adapted to dequantize the JPEG image file using the plurality of quantization matrices, wherein the dequantizer reads, for each data block, the end-of-block code associated with that data block in order to determine which of the plurality of quantization matrices was used to quantize the ~~discrete cosine transform~~ discrete-cosine-transformed digitized image data of that data block.

15. (Original) The system of claim 14 wherein the end-of-block codes are included in a Huffman-code table.

16. (Original) The system of claim 14 wherein the encoder and decoder operate according to JPEG baseline sequential mode.

17. (Original) The system of claim 15 wherein a Huffman-code table comprising a plurality of codes associated with the plurality of matrices is included in a header of the image file.

18. (Currently Amended) An article of manufacture for JPEG-image-compression adaptive quantization, the article of manufacture comprising:

at least one computer-readable medium; and

processor instructions contained on the at least one computer-readable medium, the processor instructions configured to be readable from the at least one computer-readable medium by at least one processor to thereby cause the at least one processor to operate to:

associate each of a plurality of quantization matrices to a corresponding end-of-block code for a plurality of end-of-block codes;

quantize ~~a discrete-cosine transform~~ discrete-cosine-transformed digitized image data of each of a plurality of data blocks of an image file using at least two of the plurality of quantization matrices; and

include in the image file, for at least one data block of the plurality of data blocks, the ~~end-of-block~~ end-of-block code corresponding to the quantization matrix used to quantize the ~~discrete-cosine transform~~ discrete-cosine-transformed digitized image data of the at least one data block of the plurality of data blocks.

19. (Original) The article of claim 18 wherein the plurality of end-of-block codes are included in a Huffman code table.

20. (Original) The article of claim 18 wherein the processor operates according to JPEG baseline sequential mode.

21. (Original) The article of claim 19 wherein the processor further operates to include, in a header of the image file, the Huffman code table.

22. (Currently Amended) The article of claim 21 wherein the processor further operates to:

read, for the at least one data block, the end-of-block code corresponding to the quantization matrix used to quantize the ~~discrete-cosine-transform~~ discrete-cosine-transformed digitized image data of the at least one data block;

obtain, for the at least one data block, the quantization matrix used to quantize the ~~discrete-cosine-transform~~ discrete-cosine-transformed digitized image data of the at least one data block; and

dequantize the at least one data block using the quantization matrix used to quantize the ~~discrete-cosine-transform~~ discrete-cosine-transformed digitized image data of the at least one data block.

23. (Currently Amended) A decoder for decoding a JPEG image file, the decoder comprising:

a dequantizer adapted to dequantize the JPEG image file using a plurality of quantization matrices; and

wherein the dequantizer reads, for each data block of a plurality of data blocks, an end-of-block code associated with that data block in order to determine which of a plurality of quantization matrices was used to quantize a ~~discrete-cosine-transform~~ discrete-cosine-transformed digitized image data of that data block.

24. (Original) The decoder of claim 23 wherein the end-of-block codes are included in a Huffman code table.
25. (Original) The decoder of claim 23 wherein the decoder operates according to JPEG baseline sequential mode.
26. (Original) The decoder of claim 23 wherein a Huffman code table comprising a plurality of codes associated with the plurality of matrices is included in a header of the image file.
27. (Currently Amended) A method for decoding a JPEG image file, comprising:
reading, for each data block of a plurality of data blocks, an end-of-block code associated with that data block in order to determine which of a plurality of quantization matrices was used to quantize ~~a discrete-cosine transform~~ discrete-cosine-transformed digitized image data of that data block; and
dequantizing a plurality of the data blocks of the JPEG image file using the quantization matrix of the plurality of quantization matrices used to quantize that data block.
28. (Original) The method of claim 27 wherein the end-of-block codes are included in a Huffman code table.
29. (Original) The method of claim 27 operating according to JPEG baseline sequential mode.

30. (Original) The method of claim 27 wherein a Huffman code table comprising a plurality of codes associated with the plurality of matrices is included in a header of the image file.